National Syndromic Surveillance Program (NSSP)

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CDC's website is being modified to comply with President Trump's Executive Orders.

Inpatient Data Improves MIS-C Tracking

HIGHLIGHTS

- Multisystem inflammatory syndrome in children (MIS-C) is manually reported, which can be burdensome for hospitals.
- The Pennsylvania Department of Health (PADOH) began a pilot investigation using inpatient data as a supplemental method for case detection.
- An additional 51 cases were uncovered, demonstrating the value of inpatient data for disease detection.
- Because MIS-C is rare, every case that is identified is important to better understand the syndrome, estimate risks, support prevention messaging, and inform treatment.

Public health problem

MIS-C is a serious condition that can occur four to six weeks after infection with the virus that causes COVID-19. This condition results in multiorgan inflammation and hospitalization.

MIS-C has a complex case definition and cannot be identified using reportable laboratory data alone. Beginning in 2020, PADOH asked health care providers to manually report suspected cases. PADOH reviewed and confirmed reported cases using CDC's case definition.

To help reduce the burden on hospitals, PADOH sought a supplemental method to identify MIS-C cases and improve disease estimates in Pennsylvania.

Actions taken

Working through a syndromic surveillance vendor, Pennsylvania developed a novel system to collect inpatient data from 40 hospitals in Southeast Pennsylvania. Previously, only emergency department data had been collected from hospitals. De-identified inpatient data included ICD-10 codes, patient admit date, date of birth, and ZIP code. Inpatient data were collected in near real-time.

Analysts found that most potential MIS-C cases were from one facility, a major Pennsylvania pediatric hospital. Based on that finding, PADOH launched a pilot investigation focused on that facility. The pilot would test the validity of the system and determine if the new system could reliably detect cases that went unreported during the COVID-19 pandemic.

To identify unreported MIS-C cases, investigators searched syndromic inpatient data from this hospital for potential MIS-C cases. Criteria included:

- Patients under 21 years of age
- Admission between Dec. 26, 2020 and Aug. 15, 2022
- ICD-10 diagnosis M35.81

Patients who met the above criteria were then matched to patients with a confirmed MIS-C diagnosis previously reported to PADOH. Those who were not previously reported underwent medical chart review to determine if they met CDC's 2020 MIS-C case definition.

Implementation advice

Public health professionals can learn more about how to implement this solution by contacting Allison Longenberger at the Pennsylvania Department of Health at alongenber@pa.gov.

Outcome

PADOH found that syndromic inpatient data showed promise as a tool for detecting MIS-C cases quickly and efficiently. Using syndromic inpatient data, officials identified a total of 124 patients with MIS-C diagnosis codes, including 35 previously reported cases. After chart review, they identified an additional 51 confirmed MIS-C cases that had not been previously reported. At the time, these additional cases increased the hospital's MIS-C case count by 142% and Pennsylvania's total case count by 18%.

The remaining 38 patients identified through syndromic inpatient data did not meet CDC's MIS-C case definition. This highlighted the need to explore additional strategies to accurately categorize MIS-C with syndromic inpatient data.

PADOH continues to use syndromic inpatient data to identify unreported cases of MIS-C in Pennsylvania. Because MIS-C is rare, identifying cases is important to better understand the syndrome, estimate risks, support prevention messaging and inform treatment.

PADOH is also exploring the use of syndromic inpatient data for near real-time monitoring of other health threats, diseases and conditions. Examples include monitoring hospitalizations for influenza to gauge severity of circulating strains.

Resources

Allison Longenberger, PhD, MPT, Epidemiologist Supervisor
Bureau of Epidemiology
Pennsylvania Department of Health
alongenber@pa.gov

Centers for Disease Control and Prevention
Office of Public Health Data, Surveillance and Technology
Detect and Monitor Division
www.cdc.gov/nssp

The findings and outcomes described in this syndromic success story are those of the authors and do not necessarily represent the official position of the National Syndromic Surveillance Program or the Centers for Disease Control and Prevention.

SOURCES

CONTENT SOURCE:
Office of Public Health Data, Surveillance, and Technology